

Fluoride and Oral Health

Dental caries (tooth decay) is an infectious disease caused when bacteria break down the enamel surface of a tooth. If untreated, dental caries can result in loss of tooth structure, tooth extraction, overall discomfort, and pain.¹

Fluoride can help to reduce the incidence of dental caries by making the teeth more resistant to acid attacks from plaque bacteria and sugars in the mouth. Fluoride also contributes to remineralization and stops acid production in already erupted teeth.² Fluoride is a naturally occurring mineral that is present in most water sources at very low levels. The Centers for Disease Control and Prevention (CDC) has information on the optimal fluoride level in water sources for tooth decay prevention on their website at http://www.cdc.gov/fluoridation/fact_sheets/cwf_ga.htm³ In 2008, only 30% of the Montana population served by public water systems had optimally fluoridated water, compared to 72% of the total United States population.⁴

In addition to optimally fluoridated drinking water, fluoride can be applied to teeth through toothpaste, a fluoride varnish application, dietary supplements, or via a fluoride mouth rinse.

School Based Fluoride Mouth Rinse Program – Organization and Participation

Over the past several years, the Montana Department of Public Health and Human Services (DPHHS) Oral Health Program assisted schools with administering the Fluoride Mouth rinse (FMR) Program. The goal of the FMR Program was to promote oral health and reduce dental caries by targeting children in kindergarten through sixth grade in communities with drinking water fluoride levels below the recommended optimal level. As a part of the program, schools offered additional educational programs and services such as the Initial Rinse Program, Oral Health Screenings, and Dental Health Education. The Fluoride Mouth Rinse Program was discontinued in May of 2009.

The FMR Program involved collaboration between the DPHHS Oral Health Program and participating schools. Each school designated an FMR Coordinator, such as a school nurse, a school staff member, or a community member, for coordinating the program activities with the Oral Health Program. At the start of the school year, the Oral Health Program supplied participating schools with the necessary fluoride mouth rinse supplies and an instructional manual. The manual, titled *"Guidelines for a School Based Fluoride Mouth Rinse Program"*, included participation consent forms, parent and student educational materials, and explained how to manage and administer the program throughout the school year.

The school needed a signed consent form from a parent or guardian before a student could participate. The FMR Coordinator kept records of the number of signed consent forms and how often the FMR Program was offered to each grade throughout the school year. In the 2008-2009 school year, parent consent forms were collected for 23,820 students. Also during the school year, 148 schools received FMR supplies and some may have purchased FMR supplies independently. A total of 150 schools submitted FMR program participation data to DPHHS. (Table)

Table: Summary of school-based FMR Program participation, 2007-2008 and 2008-2009 school years, Montana

	2007-2008	2008-2009
Types of schools participating	Public, private, colony, Christian	Public, private, colony, Christian
Grades participating	Preschool, Kindergarten, grades 1 - 12	Preschool, Kindergarten, grades 1 - 12
Months FMR offered in schools	September 2007 through May 2008	September 2008 through May 2009
Number of schools receiving FMR supplies	246	148
Number of schools reporting	166	150
Number of counties where FMR Program was offered	38	38
Number of parent consent forms returned to schools	26,157	23,820
Oral health services other than FMR offered in schools (# of schools)	<ul style="list-style-type: none"> •Initial Rinse Program Education (110) •Oral Health Screening by Dental Professional (56) •Dental Health Education (94) •Other: see Other Oral Health Services on page 2 (29) 	<ul style="list-style-type: none"> •Initial Rinse Program Education (102) •Oral Health Screening by Dental Professional (64) •Dental Health Education (90) •Other: see Other Oral Health Services on page 2 (17)

The Centers for Disease Control and Prevention (CDC) recommend offering the mouth rinse to each participant once a week, for a total of 28 to 32 rinses per student each school year.⁵ In Montana, students were offered mouth rinse an average of 30 times during the 2007-2008 school year and 28 times in 2008-2009. The mouth rinse was offered most frequently in October and January through April 2009. In January through April, the fluoride mouth rinses were conducted almost four times a month, averaging about once a week. The mouth rinse was offered the least frequently – from two to three times per month – in September, December, and May, most likely due to school vacations and the program initiation and conclusion. (Figures 1 and 2) The fluoride mouth rinse procedure took less than 5 minutes of class time each week.

Figure 1: Number of fluoride mouthrinse parent consent forms returned to schools, 2007-2008 and 2008-2009 school years, Montana

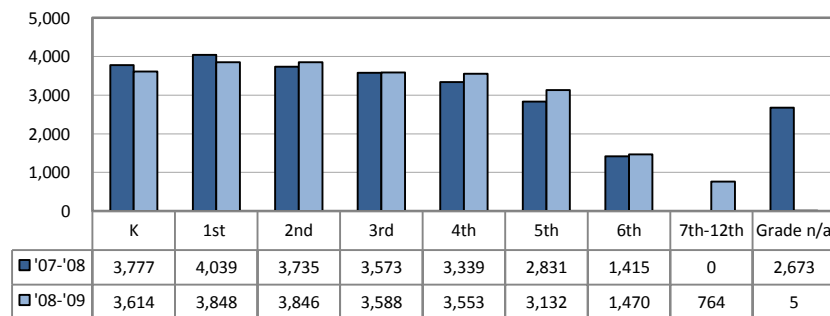
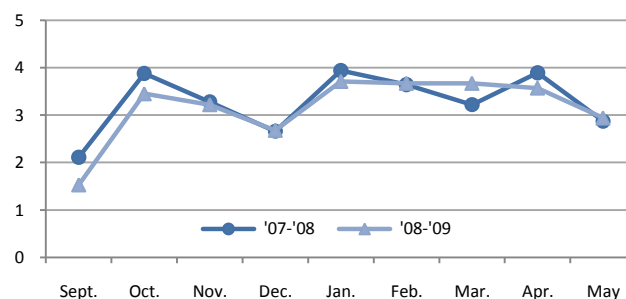


Figure 2. Average number of times fluoride mouthrinse was offered, by month, 2007-2008 and 2008-2009 school years, Montana



Oral Health Activities Other than the Fluoride Mouth Rinse Program

Montana schools conducted other oral health activities in addition to the FMR Program including:

- **Initial Rinse Program:** an educational program on how the fluoride mouth rinse procedure is conducted.
- **Oral Health Screening Program:** based on the nationally recognized Basic Screening Survey developed by the Association of State and Territorial Dental Directors and the CDC; includes an “open mouth exam” conducted by a dental or health professional.
- **Dental Health Education Program:** focuses on distribution of classroom education materials prepared by the American Dental Association in recognition of National Children’s Dental Health Month.
- **Other Oral Health Services:** a variety of activities offered throughout the school year, including dental health fairs, field trips to dentist offices, fluoride varnish applications, health and wellness discussions, Grungy Plaque presentations, sealant programs, health screenings, weekly health tips, Crest toolkits/toothbrushes, and nutritional counseling.

Recommendations to Promote Oral Health and Reduce Tooth Decay

- Brush twice a day with fluoridated toothpaste.
- Clean between your teeth daily with dental floss.
- Limit snacks, starch, and sweets that stick to your teeth.
- Eat nutritious, well-balanced meals.
- To quench your thirst – drink water! Limit fruit juice and sport drinks.
- Visit your dentist regularly (establish a dental home by age 1).

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¹ Featherstone JD. Prevention and reversal of dental caries: roles of low level fluoride. Community Dent Oral Epidemiol. 1999;27:31-40.

² WebMD. Oral Health Guide. Dental Health and Fluoride Treatment. <http://www.webmd.com/oral-health/guide/fluoride-treatment> Updated January, 2010. Accessed October 1, 2010.

³ CDC. Populations Receiving Optimally Fluoridated Public Drinking Water --- United States, 1992-2006. *MMWR*. 2008;57(27):737-739.

⁴ Centers for Disease Control and Prevention. Community Water Fluoridation. 2008 Water Fluoridation Statistics. <http://www.cdc.gov/fluoridation/statistics/2008stats.htm> Updated August, 2010. Accessed October 1, 2010.

⁵ CDC. Recommendations for Using Fluoride to Prevent and Control Dental Caries in the United States. *MMWR*. 2001;50(RR14):1-42.